



A new species of *Uleiorchis* (Orchidaceae, Gastrodieae) from the Atlantic Forest of Brazil

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Abstract

A new species from the Brazilian Atlantic Forest, *Uleiorchis prataënsis*, is described, with illustrations and scanning electron micrographs of pollinaria and seeds. Comments on the new species are presented with a key to the species of the genus. Because the phylogenetic position of *Uleiorchis* has not been previously evaluated with DNA data, we estimated phylogenetic relationships using nrITS sequence data to confirm that this genus is a member of Gastrodieae. The results indicate with high support in both maximum parsimony and maximum-likelihood analyses that both species of *Uleiorchis* are sister and members of this tribe. Finding a new species in a relatively well-collected place such as Paraná State supports the status of high diversity hotspot for the Atlantic Forest and demonstrates the need for more fieldwork on orchids and other families.

Key words: flora of Paraná, *Gastrodia*, nrITS, molecular phylogenetics, mycoheterotrophy

Introduction

Uleiorchis Hoehne (1944: 129) is a small Neotropical genus of obligate mycoheterotrophs with only two species described so far: *Uleiorchis liesneri* Carnevali & Ramírez (1993:105), a species endemic to the Venezuelan Amazon, and *Uleiorchis ulei* (Cogniaux: 1895:244) Handro (1958:175), the type species of the genus, reported from in Brazil, Honduras, Panama, Colombia, Venezuela, Peru and the Guianas (Kores *et al.* 2005a). In Brazil, *U. ulei* is broadly distributed, occurring in the Atlantic Forest of Espírito Santo and Santa Catarina and in the Amazon of Rondônia (Barros *et al.* 2014).

Dressler (1981, 1993) included *Uleiorchis* in tribe Gastrodieae, in the “lower” Epidendroideae, emphasizing that only this genus is Neotropical in a lineage with predominant diversity in Asia. Gastrodieae are characterized by being obligately mycoheterotrophic, with or without tuberous roots, and having simple racemes of spirally arranged flowers. Sepals are usually connate and adnate to the petals, making tubular flowers. The column has a prominent foot, the anther is incumbent and the pollinaria are sectile with pollen grains in tetrads. Dressler (1993) suggested that further studies are likely to exclude from Gastrodieae some members of this group (i.e. his circumscription of the tribe was not likely to be monophyletic). In a revision of the Neotropical mycoteterotrophic orchid genera *Uleiorchis* and *Wulfschlaegelia* Reichenbach (1863: 131), Born *et al.* (1999) made comments on the distribution and seed morphology of the genera, emphasizing that little could be said about the second species of *Uleiorchis* described by Carnevali and Ramírez (1993). In fact, *U. liesneri* is known only from the type specimen, and the description indicates as the only difference the length of the lip (greater than or equal to the length of the sepals and smaller than the sepals in *U. ulei*). Up to now, the only phylogenetic analysis including DNA sequence of this genus was carried out by Molvray *et al.* (2000) using nuclear 18S rDNA. Their results indicated that the existence of several unrelated lineages of mycoheterotrophic orchids, and an unidentified species of *Uleiorchis* clustered with a species of *Gastrodia* Brown (1810: 330) in an analysis with the topology constrained at the subfamily level. This molecular phylogenetic study was used to support maintenance of Gastrodieae with essentially the same genera as in Dressler (1993) and Chase *et al.* (2003), the latter system being based mostly on the results of molecular studies. Kores *et al.* (2005b) reached a similar conclusion about composition of Gastrodieae. The study of Molvray *et al.* (2000), however, was based only on plastid *rbcL* and

does not occur in collections with ripe fruits. However, more field studies should be done to verify whether this feature is diagnostic for *U. prataënsis*.

Artificial identification key for the *Uleiorchis*:

1. Lip united ca. 3/5 of its length to the floral tube *U. prataënsis*
- Lip totally free of the floral tube 2
2. Lip narrowly oblong-elliptical, 15–16 mm long *U. liesneri*
- Lip narrowly oblong-lanceolate, ca. 11 mm long *U. ulei*

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